



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 10/661,793 | 09/12/2003 | Chi-An Kao | TS01-1037 | 8353 |
| 8933 | 7590 | 07/02/2008 | EXAMINER | |
| DUANE MORRIS, LLP | | | NGUYEN, KHIEM D | |
| IP DEPARTMENT | | | | |
| 30 SOUTH 17TH STREET | | | ART UNIT | PAPER NUMBER |
| PHILADELPHIA, PA 19103-4196 | | | 2823 | |
| | | | | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 07/02/2008 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/661,793 | KAO ET AL. | |
| | Examiner | Art Unit | |
| | KHIEM D. NGUYEN | 2823 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 April 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 8-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 12-14 is/are allowed.

6) Claim(s) 8-11 and 15-17 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 8-11 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Sahin et al. (U.S. Patent 2003/0220708).

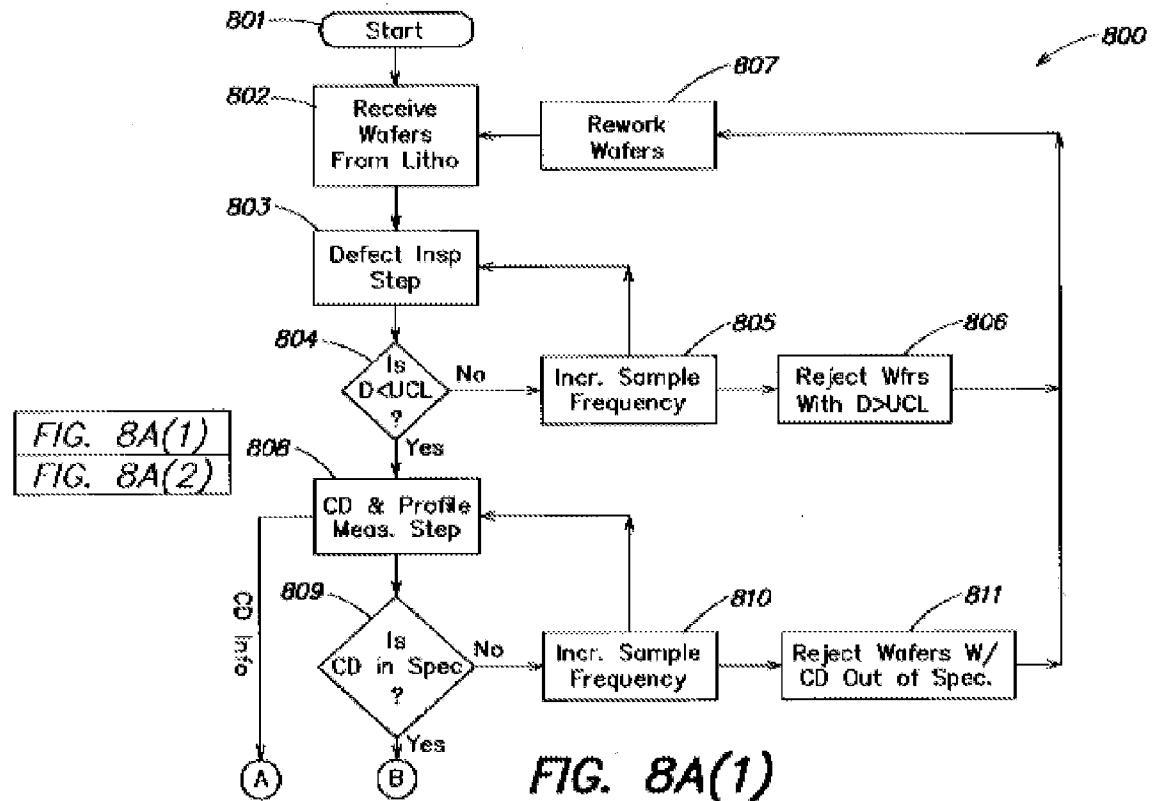
In re claim 8, **Sahin** discloses a system for creation of an opening of controllable format through a layer of insulation material, comprising:

means **102** for creating an opening **710a**, **710b** through a layer of etch resist material **708** provided over the surface of a layer of insulating material **704/706** having been deposited over the surface of a substrate **702** (see page 11, paragraphs [0150]-[0152] and FIGS. 7A-C);

means for measuring an obtained critical dimension measurement of the opening **710a**, **710b** created through the layer of etch resist material **708** (see page 16, paragraph [0207] and step 803 in FIG. 8A(1));

means, including a feedback mechanism (see page 12, paragraph [0166]), for assuring that the obtained critical dimension measurement of the opening created through the layer of etch resist material **708** is within design specification

(see page 16, paragraph [0210] and step 809 in FIG. 8A(1)), the feedback mechanism communicating with the means for creating an opening through a layer or etch resist material 708 to control the critical dimension (CD) measurement of the opening 710a, 710b by implementing corrections (see step 807) in the means for creating an opening through a layer of etch resist material (see page 6, paragraph [0211] and steps 807 and 810 of FIG. 8A(1));



means for creating an opening 710a, 710b through the layer of insulation material 704/706, whereby a diameter of the opening 710a, 710b through the layer of insulation material 704/706 is dependent on a diameter of the opening

710a, 710b created through the layer of etch resist material **708** (see page 17, paragraphs [0214]-[0215]); and

means, including a feedback mechanism, for assuring that the opening

710a, 710b created through the layer of insulation material **704/706** is within design specification (see page 17, paragraphs [0216]-[0219]).

In re claim 9, as applied to claim 8 above, Sahin discloses all claimed limitations including the limitation wherein means, including a feedback mechanism (see page 12, paragraph [0166]), for assuring that an obtained critical dimension measurement of the opening **710a, 710b** created through the layer of etch resist material **708** is within design specification comprising (see page 16, paragraph [0210] and step **809** in FIG. 8A(1)): means for linking to a software supervisory function, thereby including data transmission functions, means for linking to a software function equally being linked to a software supervisory function, thereby including data transmission functions; means for data manipulating capabilities, thereby including manipulating interdependent data ; means for interfacing with semiconductor equipment, thereby including equipment functioning in a supporting role to the semiconductor equipment; and means for creating instructions for the semiconductor equipment, thereby including equipment functioning in a supporting role to the semiconductor equipment (see page 6, paragraph [0094]).

In re claim 10, as applied to claim 8 above, Sahin discloses all claimed limitations including the limitation wherein means for assuring that the opening

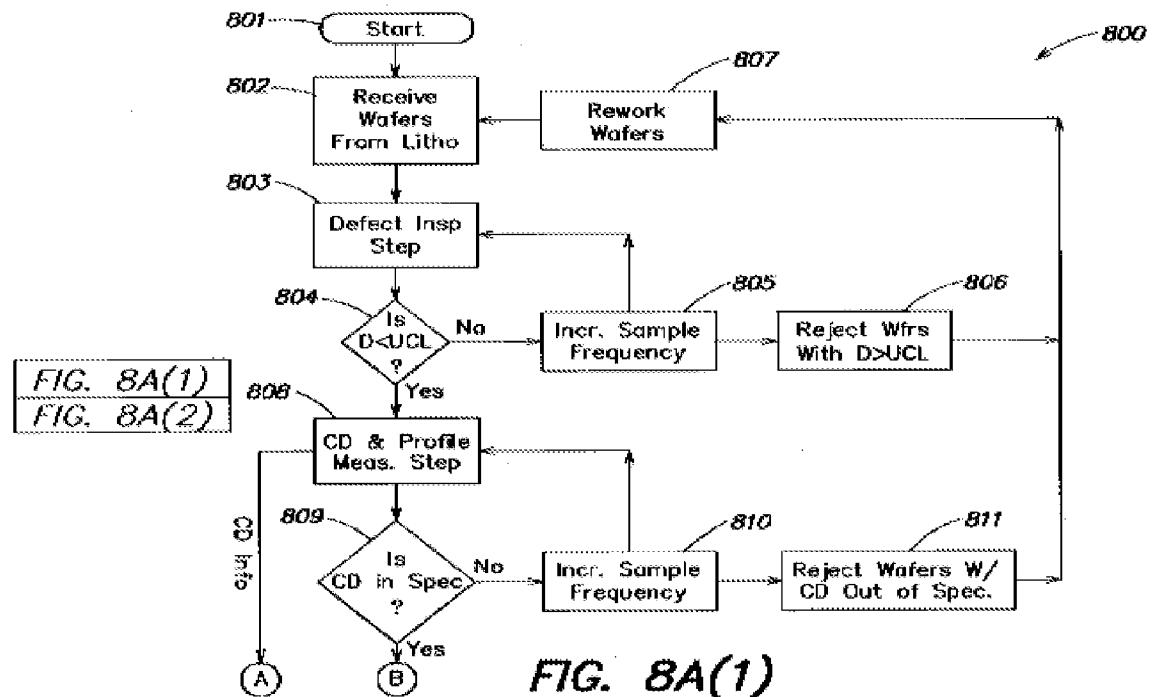
710a 710b created through the layer of insulation material **704/706** is within design specification comprising: means for linking to a software supervisory function , thereby including data transmission functions, means for linking to a software function equally being linked to a software supervisory function, thereby including data transmission functions; means for data manipulating capabilities, thereby including manipulating interdependent data; means for interfacing with semiconductor equipment, thereby including equipment functioning in a supporting role to the semiconductor equipment; and means for creating instructions for the semiconductor equipment, thereby including equipment functioning in a supporting role to the semiconductor equipment (see page 6, paragraph [0094]).

In re claim 11, as applied to claim 8 above, Sahin discloses all claimed limitations including the limitation wherein the system further comprising means for creating an opening **710a, 710b** having non-linear sidewalls through a layer of insulation material by applying a high-polymer based etch to the surface of the layer of insulation material **704/706** (see page 11, paragraph [0158]).

In re claim 15, Sahin discloses a system for creation of an opening of controllable format through a layer of insulation material, comprising:

means **102** for creating an opening **710a, 710b** through a layer of etch resist material **708** provided over the surface of a layer of insulating material **704/706** having been deposited over the surface of a substrate **702** ((page 11, paragraphs [0150]-[0152] and FIGS. 7A-C);

means, including a feedback mechanism (see page 12, paragraph [0166]), for obtaining a critical dimension measurement of the opening created through the layer of etch resist material **708** assuring that the critical dimension measurement (CD) is within design specification (see page 16, paragraph [0210] and step **809** in FIG. 8A(1)), the feedback mechanism communicating with the means for creating an opening **710a**, **710b** through a layer of etch resist material **708** to control the critical dimension measurement (CD) of the opening **710a**, **710b** (see page 6, paragraph [0211] and steps 807 and 810 of FIG. 8A(1));



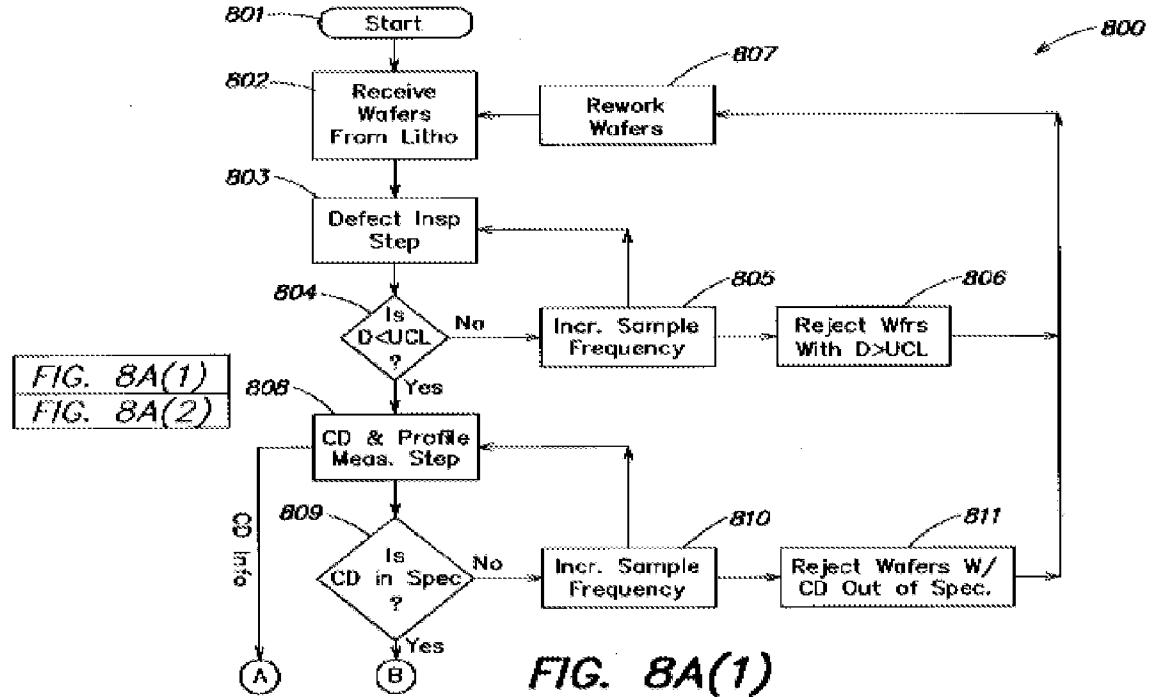
means for creating an opening **710a**, **710b** having non-linear sidewalls through the layer of insulation material **704/076** by applying a high-polymer based etch to the surface of the layer of insulation material **704/706** (see

paragraph [0158]), whereby a diameter of opening having non-linear sidewalls is dependent on a diameter of the opening created through the layer of etch resist material **708** (see page 17, paragraphs [0214]-0215); and

means, including a feedback mechanism, for assuring that the opening **710a, 710b** created through the layer of insulation material **704/706** is within design specification (see page 17, paragraphs [0216]-[0219]).

In re claim 16, Sahin discloses a system for creation of an opening of controllable format through a layer of insulation material, comprising:

means, including a feedback mechanism (see page 12, paragraph [0166]), for creating an opening **710a, 710b** through a layer of etch resist material **708** provided over the surface of a layer of insulating material **704/706** having been deposited over the surface of a substrate **702**, such that the opening **710a, 710b** has a critical dimension measurement (CD) that is within design specification (see page 16, paragraph [0210] and step 809 in FIG. 8A(1));



means for creating an opening 710a, 710b through the layer of insulation material 704/706, whereby a diameter of layer of insulation material 704/706 is dependent on a diameter of the opening 710a, 710b created through the layer of etch resist material 708 (see page 17, paragraphs [0214]-0215); and means, including a feedback mechanism, for assuring that the opening created through the layer of insulation material is within design specification (see page 17, paragraphs [0216]-[0219]).

In re claim 17, as applied to claim 16 above, Sahin discloses all claimed limitations including the limitation wherein the means, including a feedback mechanism, for creating an opening 710a, 710b (see page 12, paragraph [0166]) include means for making corrections to an original critical dimension

measurement (CD) that is not within design specification (see page 17, paragraphs [0214]-[0215]).

Allowable Subject Matter

3. Claims 12-14 were previously allowed over prior art of record as indicated in the Office Action, Paper No. 030305 mailed on March 08th, 2005.

Response to Applicants' Amendment and Arguments

4. Applicants' arguments filed on April 1st, 2008 have been fully considered but they are not persuasive.

Applicants contend that the reference, Sahin et al. (U.S. Pub. 2003/0220708), herein known as **Sahin** provides no feedback mechanism that communicates with the means for creating an opening through a layer of etch resist material to control the CD (critical dimension) of the opening.

In response to Applicants' contention that **Sahin** does not teach or suggest that the feedback mechanism communicating with the means for creating an opening through a layer of etch resist material to control the critical dimension (CD) measurement of the opening,

Applicants' attention is respectfully directed to (page 6, paragraphs [0209]-[0211] and FIGS. 8A(1), for example), where **Sahin** discloses step 808 of measuring the critical dimension (CD) and profile of the processed wafer, step 809 of checking to assure if the CD is within the design specification, if the processed wafer having CD that out of the design specification, reject the wafer

(see step **811**) and send the wafer back for rework through photolithographic tool (see steps **807** and **802**).

Thus, in view of the above, **Sahin** clearly discloses a feedback mechanism that communicating with the photolithographic tool and the checking and measuring tool in order to assure that the CD obtained is within the design specification and to control the CD measurement of the opening by implementing corrections in the means for creating an opening through a layer of etch resist material.

For this reason, Examiner holds the rejection proper.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time Policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHIEM D. NGUYEN whose telephone number is (571)272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Khiem D. Nguyen/
Examiner, Art Unit 2823
/W. David Coleman/
Primary Examiner, Art Unit 2823